

Forecourt screen, Palace of Stanislaus, Nancy.

METAL-WORK.

By JOHN M. SWAN, R.A., MONTAGUE FORDHAM, AND WALTER GILBERT.

Read before the Royal Institute of British Architects, Monday, 22nd January 1906.

I. By JOHN M. SWAN, R.A.

I HOPE you will forgive my frequent allusion to ancient art in this short Paper on metal-work. I am so far penetrated by a profound reverence for the past that I feel we are but as pigmies that peep through the legs of the Colossus of antiquity. Speaking of this I must needs think of the Colossi, and of the work of Chares, pupil of Lysippus, who built the Colossus of Rhodes that strode across the harbour where little ships sailed out and in. The proportions of this giant are nearly equalled by Bartholdi in his magnificent statue of Liberty that guards the entrance to New York harbour. I was deeply impressed by the simplicity, grandeur, and splendid malachite-green colour of this work: it rises like some Titan-born goddess from the sea—not as Aphrodite, but a kind of Minerva, with a sea-girt realm. And I wondered when a statue of Britannia would arise from the waves in bronze of colossal form in the same spirit of antiquity, and emblematical of ourselves and the sea-girt isle we spring from, or at least to which we owe our greatness and power. Japan, that rising nation, has, since the eighth century, produced a series of colossal works in bronze: the most notable is their presiding genius Rochana, known as the Daibutsu—a seated figure 53 feet high, breadth of face 9 feet 4 inches. Four hundred and fifty tons of metal are estimated to have been used in its construction.

Dædalus, that mythical personage under whose name the Greek writers personified the earliest development of sculpture and architecture, is one of the presiding deities, but he does not help us much, save as a starting point. During the Homeric period of Greece works executed in metal were wrought by means of the hammer, and the parts were joined together by pins, cramps, or rivets; the art of casting in bronze, iron, and the precious metals, together with the use of ivory or chryselephantine work, followed later. One reads of the colossal statues in ivory and gold of Pheidias; also of a statue of Dionysius by Onassimedes of solid bronze, mentioned by Pausanias as existing at Thebes; and metal plating upon a wooden nucleus. Unfortunately there is no better record than the statements of Pausanias and Pliny, according to whom the art of casting in bronze and in iron was invented by Rhæcus and Theodorus of Samos, who probably lived in the fifth and sixth centuries before our era.

If we could have the power of taking the roof off a Greek workshop, even as Asmodeus in *Le Diable Boiteux*, and peeping into the mysteries of the crucible and their methods! But that cannot be; the processes employed by the ancients are so shrouded in mystery and so difficult to verify, even by the remains of the works they have left us, that we cannot at this distance speak with absolute certainty or form a clear judgment upon them. We rely upon the ancient vases and bas-reliefs. We read that the preparation of the alloy or bronze with the Greeks was an especial business, and flourished in its highest development in Ægina and Delos, then for a long time at Corinth, but that it afterwards disappeared.

Many researches have been made, and the bronzes of ancient Egypt, Greece, Rome, China and Japan have been analysed by Flight, Gladstone, Roberts Austen, Garland, Christophe, and others, so that we can form a very good idea of their alloys, although I always wonder how the iron got in.

The marvellous ivory and gold statues or chryselephantine work of Pheidias and others (I believe Winckelmann mentions one hundred)—I wonder how they could have looked in their places in the temple in the light of Greece: the sea-blue naval heroes of Delphi; Silanion's Jocaste with deadly pale countenance, of silver and bronze alloy; Aristonidas' blushing Athamas, from a mixture of iron with bronze, is worthy of remark, as iron does not admit of being blended with copper. Pheidias gave also (so runs the legend) a red colour to the Lemnian Athene; there are also the iron statues of Theodorus of Samos.

All the varying changes of colour that are mentioned by the ancients, as the paleness of Jocaste and the blush of the Lemnian Athene, are occasioned by the nature of the alloys. Many metals combine together when melted, and only remain in union within certain ranges of temperature by reason of the wide differences of their melting and solidifying points.

I wonder what place the beautiful ivory carvings of the Japanese to-day would hold in miniature art compared with the ancients in technical skill; for certainly they are the Greeks of our time in ivory and metal-work, and of surface treatment and colour.

In ancient bronze the proportions of tin mixed with brass or copper and of copper with silver seem to have been: copper 71 to 87 parts, tin 3 to 6 parts, lead 4 to 21 parts. Lead is occasionally employed, and there are traces of iron. With ourselves in ordinary bronze 96 copper and 4 of tin are generally used.

The Japanese are the real authorities for treatment of colour in metals to-day. They combine such extraordinary manipulative skill with artistic taste in carrying out any imaginative work in colour that they are the masters of the world. We have scientific knowledge, but not the artistic love of this nation for fine beautiful metal-work. There is a tsuba, or sword-guard, I have brought with me, also an enamelled fish-box of Mokume, that are masterpieces of metal-work and colouring.

The superiority of French workmanship is doubtless due to their fine artistic instinct

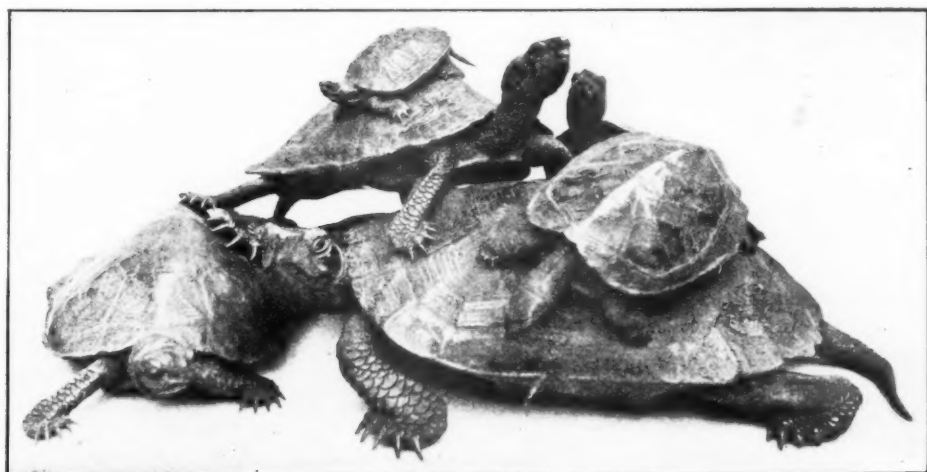
allied to their excellent art training. I consider of the highest importance in a work of art the study of colour for the full realisation of artistic effect.

In modern activities in metal-work for the European market the Japanese are practically the principal purveyors, by German, French, and English capital. When they work for



JAPANESE METAL-WORK : BRONZE DRAGON POT OR BRAZIER, BY TO'UN.

themselves we may be assured of a fine artistic result, although it can never assimilate perfectly with our surroundings, as our points of view differ from the Oriental in the decoration



JAPANESE METAL-WORK : GROUP OF TORTOISES, BY SEIMIN.

of interiors. The Persian and Arabian metal-work with large plain surfaces of copper and brasses might, treated in a bas-relief manner, be well adapted by ourselves for panel treatment for interior decoration.

We get a knowledge of bell founding in Theophilus' *De Diversis Artibus*, something definite, in actual use in the eleventh century; and from the famous Benvenuto Cellini we get the process of casting in *cera perduta*, written by himself in his treatise on sculpture, animated by his own extraordinary story. I always think Benvenuto Cellini could colour a bronze as well as a story.

It is about twenty years ago now since the first *cera perduta* castings were made in this country. I remember well when Gilbert, Onslow Ford, and Stirling Lee were working hard at their first essay. The process is now universal and in use in many foundries in England.

In my foregoing remarks I have wandered through classic periods and the Renaissance to our own time to explain the introduction of the ancient method of casting. I have brought an example of Egyptian casting of a cat's head in *cera perduta*, also one of a Græco-Roman fragment of a foot that is chased. These I consider are wax castings and not sand castings.

The process of *cera perduta* casting as used in England I will endeavour to explain as briefly as possible. First, an ordinary piece mould or gelatine mould is made from the plaster model. Secondly, a wax casting is run from the mould, to which are attached the runners and gates for the flow of metal, and vents for air or gases. Thirdly, it is cored and an external mould now covers the whole. It is then placed in a muffle or furnace, the wax melted out, and when the mould is dry the metal is poured in that replaces the wax model. *Voilà* the bronze.

The founder's wax is made of Gambia, Italian, or native beeswax and resin coloured with vegetable matter or vermilion. The foregoing colouring substances volatilise and leave no residue. The Japanese employ a vegetable wax from the fruits of *Rhus succedanea*. The method of obtaining the founder's casting in wax is by pouring the molten wax into a piece mould until such time as the desired thickness is obtained. Sometimes wax wrought by tempering with hot water or in a semi-melted state is painted or brushed into the mould. Sometimes gelatine moulds are used for, say, two copies, although the shrinkage is a great risk. The colouring of the wax is important, as if some metallic pigment or earth colour were employed it would cause a residue in melting out that would destroy the casting. Vegetable colour or vermilion is generally employed, as they completely volatilise. Upon the founder's wax model are placed the jets and ingates or openings through which the metal is poured into the mould; the necessary outlets for the escape of the air and gases, and for running or melting out the wax, are moulded in pipe fashion, and lantern pins, as they are termed, are inserted to aid in keeping the core in position.

The loam is made of half brickdust and half plaster, but the intonaco is of powdered earthen drain-pipes obtainable from Doulton, Lambeth. The Japanese employ clays of decomposed granite obtained from the hills round Kioto or Osaka: they are extremely plastic, but not very refractory, as they contain considerable amounts of the alkalis. Clays are tempered by admixture with old fire bricks of fine and coarse powder. The core, which is one of the most important parts of the mould, may be hollow or solid; for figures it is generally solid. The Japanese core does not differ much from European cores, save in thickness. After the core is made and dried the object is modelled in wax upon it. The artist in preparing this model uses all the resources of his skill, and if the casting be successful, all the subtle and delicate touches of his hand will appear in imperishable bronze. Occasionally the Japanese employ paper for making moulds. Compressed, I am informed, it makes fine moulds, and the charcoal gives a good impression very delicate when burnt—but this process is not general, as the

ancients employed lava for moulds, jewellery especially, the same as other Oriental nations employ tufa and stone. The founder's wax model is coated with a thin layer of the first intonaco or fine clay; after drying, other layers are applied, until the crust is thick enough for the stronger loam. The mixture of clays for the first layer or intonaco is very carefully prepared to prevent them from being melted by the molten metal. The formation of a fused crust on the casting, which is always difficult to remove, and destroys its surface, is obviated by this. The core and mould are dried slowly, the wax is melted out by means of a charcoal fire by which both inside core and outside mould are heated and the walls baked hard. The core and mould are heated by a charcoal fire generally to a red heat before the metal is poured in.

Among the different examples of metal colouring exhibited here this evening I must not fail to draw attention to a new colour that was discovered by my friend Mr. Rollo Appleyard, who has made for himself a well-known name in science; it is a deposit of sulphur upon copper. I have found something analogous to it upon the Japanese enamel tsuba which I have brought for you to see.

For what I know of the art of casting in *cera perduta* in Japan I am mainly indebted to my friend Mr. Wm. Gowland, Associate of the Royal School of Mines. No man in England is better acquainted with the methods of the Japanese; he was for a long time



JAPANESE METAL-WORK, SHOWING EXTRAORDINARY DELICACY OF CHASING.

attached to the Imperial Japanese Mint. Many of the methods he told me I have tried. He obtained for me some of the grasses, the famous Hariyasu, or *Calamagrostis hakonensis*, also the unripe plum-pickles; and various patinas I have obtained, but up to the present I have not succeeded in obtaining a lobster red or a very deep brown.

I have brought a specimen of fine black bronze that I remember the late Mr. Roberts Austen, of the Mint, saying could never be obtained save by age—admitting the right alloy

and pickle were used. The subject of patinas and pickles is a very large one, and I can only touch upon it in my Paper; but it was the subject of colour that caused me to speak to you this evening on metal-work.

Everybody, I feel sure, must be struck with the uniform black colour of the bronze statues of our metropolis—the dull heavy monotony of colour. Can nobody discover in metallurgy an unchangeable alloy?—for at present all our statues are dull uniform black. I wonder when all this will change; it is a most unsatisfactory state of things for both public and artist. I stood one wet day regarding the Lions of Landseer and the base of Nelson's column in Trafalgar Square, and saw the iridescent slime oozing over their black surface, although it is said the precious bronze of which they are made, consisting of copper and tin, favours this patina formation in our London atmosphere and fog, also the large amount of dampness in the atmosphere and salt, together with frequent rain. It is further said that washing favours the production, while coal-dust, sulphide of hydrogen, and sewer gas hinder it. The black coats of the Trafalgar Square lions do not recall the orange-tawny glow of the king of beasts. Under certain atmospheric effects one can see an artistic blend with the fog and mist of architectural surroundings. That reminds me always of the peep from the steps of the National Gallery of the



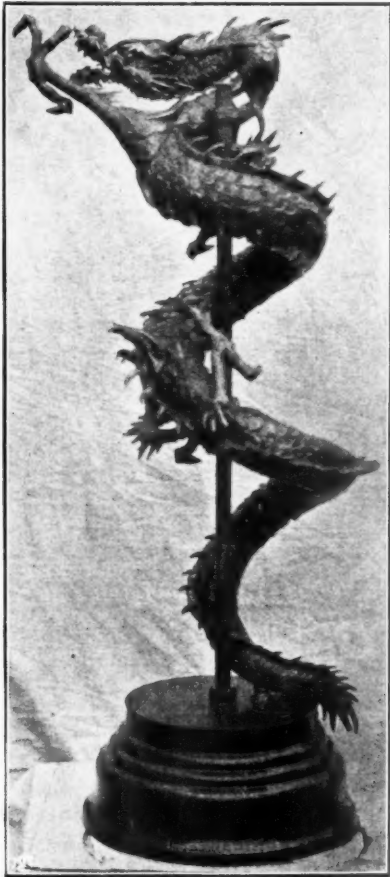
YELLOW BRONZE OR KARAKANE FIGURE OF GODDESS.

Remarkable for its colour and the introduction of gold on the patina.

columns of St. Martin's Church with their weather-beaten and washed sides. I am in love with this as one of our most beautiful artistic effects; if they were clean columns or of uniform grey, I should not notice them; they are part of dear old London. I am perforce compelled to follow the example of the ancients and to prefer in many cases gilded statues or monuments that would better resist the action of the atmosphere and have a more decorative effect. They may appear too garish at first, but a good old pea-soup London fog would soon tone the surface and take off the glare of new gilding. I believe history says three thousand bronze

statues decorated Scaurus' Theatre that Sulla took away from Greece. What if they were all black !

Fine colour is a source of joy to us all ; certain it is a gilded statue would appear as a sunbeam in our streets in the dull foggy weather, and in the summer in sunshine with blue skies overhead would be a joy for ever. Of course I imagine the artist's conception to be a beautiful creation. The noble rust (*æruo nobilis*), the antique patina, is not naturally formed



JAPANESE METAL-WORK : BRONZE DRAGON, PROBABLY
DESIGN FOR A FOUNTAIN.



JAPANESE METAL-WORK : WROUGHT-IRON LOTUS.
Fine specimen of hammered work.

in the atmosphere of London, or our statues of malachite and our copper domes would be a delightful green. This reminds me that our brusher, through the London County Council, is looking after the cleaning and washing of the works of art we possess in the way of public monuments. I hope no more of these ancient landmarks will be moved. How I miss the old Lion of Northumberland House ! He was a pet of mine ; also the Duke of Wellington.

I want to see Boehms' statue of him higher up; but even then it can never replace the association of the old Duke.

Whenever I take my walks abroad I cast my eyes around for fountains playing in the sun-baked square—the whirl of pigeons—the flower-patches. I am always looking for them, also for some decorative groups as a relief from the historical personage on a pedestal—something to relieve the dull ache of town and the monotony of statues of heroes in trousers; they are so serious and such heavy bronze—quite a weight on my mind.

Bronze bas-relief or gilt bronze in relief on marble should be fine as a decoration—even with us. I do not see why we should have less devotion for our heroes by giving them a more beautiful decorative aspect, or less feeling for our architectural surroundings. Colour would be subservient to sculpture and a glorious handmaid to architecture; the charm of mosaic is capable of wedding a beautiful monumental design; at present our monuments are barren of colour, and especially deficient in treatment of the pedestals and bases. What can be more unsympathetic than the basins of the fountains of Trafalgar Square? Is there no room for the sculptor as designer, and the play of coloured metals and water? Gilded bronze can work in unison with black bronze, and aluminium may be looked after so that it does not become the uniform London black; besides, there is water, and we occasionally get a little sunshine over which a miniature iris will play.

* * * Mr. Swan's illustrations included numerous specimens of ancient and modern metal-work, mostly Japanese, from his own private collection.

II. By MONTAGUE FORDHAM, M.A.CANTAB.

I PROPOSE, as a subject for my Paper to-night, to give a short account of the tools that are used in the ordinary working of copper, bronze, brass, and iron, with some notes on the natures of the metals and their proper treatment as viewed in our own workshop.

I take this course partly because I have constantly wanted, and never been able, to find this information in a concise form, and I therefore assume others have had a similar experience; partly because I am anxious to draw architects down into the workshops, which would have the double advantage of giving them more knowledge of the actual treatment of metal and of creating a closer bond between architect and craftsman; and lastly, because I thereby avoid the error of wasting your time in dogmatising about design, on which I am sure I am not so competent to speak as any of my audience.

Turning, then, to the workshop, the smith is the king of metal-workers, and I will take him first. In the smithy you find at the forge the smith and the smith's mate, or striker. The principal tools they will employ, in addition to the anvil, a heavy tool called a swage-block, vices, and tongs, are the following:—the sledge hammer, for heavy work; smaller hammers of various types, for lighter work; tools called top and bottom tools; chisels and section tools; horns, monkey tools, and the set hammer.

Forging is, of course, the work of the smith, and for all heavy forging the sledge hammer is used, but it is not the smith who uses it; it is his mate, the striker, who wields this. The smith is in this case only a director; holding the metal with his tongs, he strikes it lightly with his hand hammer, indicating the point at which it should be struck, and at the same time often calling out an indication of the strength with which the striker is to

strike. It is also his function to mark in this way the rate of stroke, which varies in accordance with the conditions. Sometimes you will note that the smith is not attempting to strike the metal, but only the anvil. This is a way of indicating that he wishes the striker to repeat the last blow at the same point. It is from this method of working that arises the peculiar rhythm of the hammer strokes, which creates a wild and fascinating music, specially attractive when there are two or three strikers going at once, with the tap of the smith's hammer for an under-current.

When special shaping or forging is required, what are called top and bottom tools are used. These titles explain themselves. The bottom tool is fixed in the anvil, and the metal is driven into it by the striker as he strikes. The top tool, on the other hand, is held by the smith, and is hammered on the top by the striker.

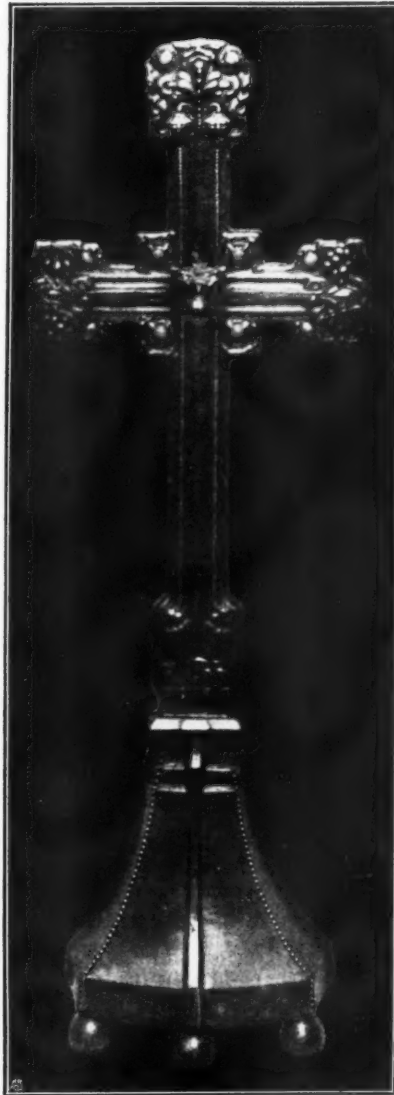
The swage-block is a mass of iron with various shaped holes in it: into these tools sometimes fit. It is used for making shoulders, straightening, and as a bottom tool when there is punching to be done. The monkey tools are used for making tenons.

The set hammer is a short hammer with one face large and flat: it is used amongst other purposes for flattening out heavy plates; the set hammer is held in position by the smith and the striker strikes on the other end.

Horns and scroll wrenches are used for manipulating small work, spirals, and tendril work. The work is fixed in the vice, and the smith works often with a tool in each hand. All the tendrils in the altar rails of the Leeds Cathedral were done in this way, our smith being allowed considerable discretion, with the result that there is no repetition of pattern.

Chisels, punches, and section tools require no special comment. In addition to the heavy forging of which I have spoken, the smith will also himself do light forging with the help of his striker; for example, forged leaf-work. This work requires great skill, and is worked hot and finished cold. Iron can be joined up by welding, which is the most characteristic method; by a collar which is shrunk on and pinned through, if necessary; or by pinning or riveting, which, though sometimes necessary, is the least characteristic.

Most of the work of the smith's shop has to go on to the fitter's, and it is there that a good deal of money is often spent.



ALTAR-CROSS FOR CATHEDRAL AT ADELAIDE:
IN BRASS REPOUSSÉ.

Executed by the Artificers' Guild from the design of
T. H. Lyon and Sidney K. Greenslade. Height
about 6 feet.

While speaking of iron-work, I may say that in our workshop we do ornamental sheetwork in iron without the use of any heat. In this case a tracer or other embossing tool is fixed in the vice. The metal is placed on the tool at the point where it is desired to raise it, and hammered on the front with a paning hammer at a point close to but not actually on the tracer, which thus raises the work at the required point. I may say that this process may be used for any metal, and is thoroughly satisfactory if your workman is skilful.

In addition to purely forged iron there is, of course, cast iron and what is called malleable cast iron, which we can with some advantage use in inexpensive work in which time is not of importance. Malleable cast iron is iron cast and cooled slowly in an annealing oven, about three weeks generally being required for the process. Iron so treated can be lightly hammered, twisted, and bent, and for small work, such as cheap handles, it is as satisfactory as wrought iron, but you cannot weld it. It is less brittle than cast iron, but much more brittle than ordinary wrought iron. Its exact limitations are a question of workshop experience.

Forged and malleable iron can be finished black, armour-bright, or bright. The best way of finishing iron black is to have oil burnt into it in the forge (a process that closes up the pores and prevents rust) and then painted; but in general it is merely painted black.

Armour-bright iron: this effect is obtained by oil-blackening your metal and then scouring with emery paper. This brightens up the higher surface, leaving the black in the hollows, accentuating the modelling, and thus anticipating the effect of time.

Bright iron is, of course, made bright by filing and scouring with emery paper or otherwise; it is often burnished: that is, rubbed over by a hard highly polished steel tool. The tool is first damped. Black iron is suited for all purposes both indoors and out. Armour-bright and bright iron cannot with advantage be used out of doors: they invariably rust, as no varnish or lacquer that we know of will stand climate; but both can be used indoors, and must either be well lacquered or varnished, or, if not so treated, must be frequently wiped over with an oily cloth.

Of all metal work good forging is to me most attractive, and nothing gives such character to good architectural work as really distinguished smithing. There is something, too, peculiarly fascinating about the smithy: the music of the hammer-strokes, the flames of varied colours, the constant change in colour of the heated metal—a change which the smith must watch with every nerve taut, ready to seize and work when he knows from the special tint that it is ripe for his special purpose. The power of the human mind and muscle combined working openly before you, all join to strengthen the atmosphere of romance that has from all times surrounded this magnificent craft.

Leaving iron-work I will now deal with copper, brass, bronze, gun-metal, and gilding metal, which can for most purposes be grouped together. All these metals can be forged in a sort of way, but you cannot weld any of them; forging is not really their proper treatment. All can be cast, but for this purpose copper is quite unsuitable, though the others can and do cast well. All are suited for sheet-work, that is, repoussé or raising.

From the point of view of sheet-work, copper is the best of these metals: it is very tough and pliable.

Brass (which, by the way, is generally a mixture of copper with varying proportions of zinc and a very small supply of lead) is less ductile than copper, more liable to crack, and not quite so easy generally to work in.

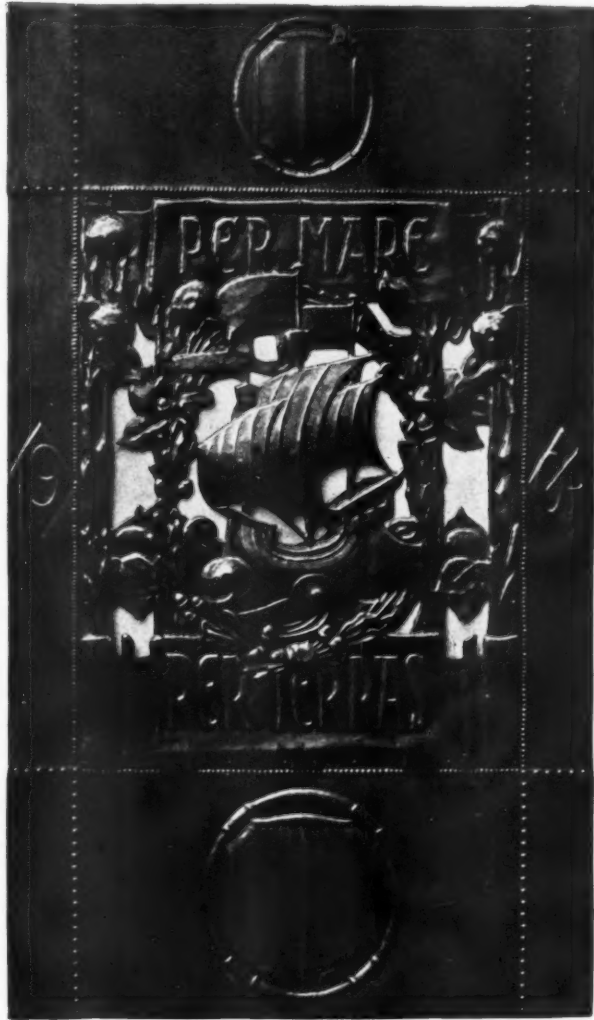
Bronze (which is generally copper with a small proportion of tin, zinc, and lead) is more suitable than brass, but not quite so good as copper for sheet-work.

Gun-metal and gilding-metal, which are varieties of bronze, have the same qualities.

The colours of these metals in the state in which they come to the shop from the mills are not particularly attractive, as all the quality has been rolled out of the metal; but in all cases they may be improved with hammering and also with the effect of atmosphere. Moreover, for all these metals there is a great range of colours with which they can be finished. All these colours, though characteristic, belong only to the surface and can be removed more or less easily; on Japanese work one sometimes finds a patina which is almost permanent. This finishing is in our workshops done by acids or fumes of acid, and the simpler shades of bronze for copper and grey for brass are easily obtained. Other colours are simply a matter of experiment and time. Whatever you do, copper, bronze, or brass tends to become green, and in London that green becomes almost black. For indoor purposes all these metals can be lacquered, and if this be very well done it is entirely satisfactory, though as regards copper and bronze we prefer to let the metal darken under the influence of climate, in which case it soon attains, with the aid of occasional rubbing, a very pleasant colour; but clients will not generally wait for this, or perhaps their servants will not do the rubbing.

As these metals cannot be welded they must be joined either by pinning (riveting) or by brazing with a spelter, which is an amalgam of zinc of the colour of brass, or in small work they can be silver-soldered. They all become and remain softish when heated, and have to be hammered hard again. Consequently it is the practice for them all to be worked cold, though heat is occasionally applied with a blowpipe, when hammering has taken the pliability out of the metal. When in the sheet they are treated in practically the same way, either by raising or repoussé.

Taking repoussé work first, the tools of a repoussé worker are innumerable. I have



PANEL IN BEATEN BRASS; KNOCKED UP COLD, ON THE TOOL.
Executed by the Artificers' Guild from the design of Mr. Edward Spencer.
Height about 4 feet.

many of them here. In addition to various hammers some workers have as many as a thousand tools, punches, chasers, tracers, &c., of various forms, each suited to its special purpose. I hesitate to give even the shortest explanation of repoussé work, as the process is so well known; but it will perhaps make my lecture more complete if I introduce it.

In order to do repoussé work, after properly scouring and planishing your metal, you set your plate on the pitch-block, warming the pitch or the metal with your blowpipe, so that they adhere. The design is then drawn in on the upper surface, and is traced in with tracers. The workman is now working on the back and drives in the design with his tracing and shaping tools, working on the tool or direct with his hammer. A good man might possibly finish all his work on the back without having to look again at the face, but he can and generally does turn his work over, and melting off the pitch with his blowpipe works from the front for the purpose of correcting errors or improving the surface. When the work on the back is finished, a certain amount of work on the front is almost invariably necessary. Lettering is done very generally by work on both sides. The altar cross for the Catholic Cathedral at Adelaide [see p. 153] was worked front and back in this way. Repoussé work can also be done by working on lead instead of on pitch.

Raising is the principal other kind of sheet work. For this another process is used. Suppose a bowl is to be made. A disc having been cut out, the metal is slightly shaped by hammering with a wooden mallet into a wooden bowl or on a sandbag until the metal takes a saucer form. It is then hammered out from outside on a tool called a head held in the vice, or it can be hammered over a stake, annealing the metal from time to time to prevent its getting too hard. Shaping on a larger scale is done by hammering over a stake. In making bowls we draw a series of concentric circles round the central point of the sheet, so as to get one's hammer-beats regular. If an exact shape is required it may be necessary to make a templet; but as the hammering proceeds the bowl often obtains shapes by accident more suitable and beautiful than any design. Sometimes all the work is done on a sandbag.

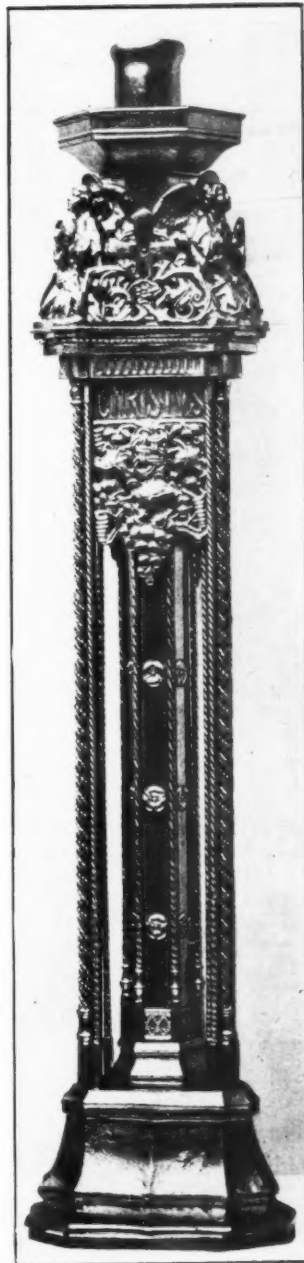
The various mixtures of copper cast admirably. These castings, as you know, are of various degrees of roughness or fineness, varying according to the sand used. Castings have to be chased, be tooled over work-chasers, or cut with a chisel, or filed or turned up with a lathe, according to the quality required and purpose; and it is in this work that the cost of cast metal comes in, though a really fine casting may sometimes be left almost untouched.

I have only now to say a word on pewter and silver. We do not use pewter very much, as it is not very easy to get it with a good colour. It lends itself readily to casting, but the colour remains unpleasing. Pewter can be embossed, but it is rather soft; it can be hammered easily into simple forms. It is not an easy metal to solder or otherwise join. The attraction of the colour of old pewter is partly due to its being alloyed with silver and partly due to the action of time and atmosphere. Of all metals silver is the most attractive to work in: it is tough and pliable, and stands a good deal of heat when annealed. It casts well and shows a nice texture. The general treatment is the same as copper, but it is worked in practice with the finer tools, and owing largely to its value and the necessity of saving the metal it should be employed with a different type of design. Soldering can also be used more freely in silver than copper, as the joint made with silver solder is practically invisible. Silver can be finished bright or can be oxidised, that is, darkened with acids, whereby you obtain the effect of time. The beauty of surface of silver, and indeed of all metals, is largely due to the workman's skill with his tools. The beauty of old silver and brass also to some extent depends on the fact that they have been polished for centuries.

Thus much for the metals as used in our workshops; and if there is a royalty about the smith's work which is unique, there is an imaginative beauty about fine repoussé work and well-shaped metal that has a value peculiarly and specially its own, and requires a marvellous skill and great understanding.

So far I have talked definitely about the working of metal. I propose now to speak for ten minutes on a question which arises naturally from any consideration of this subject. Why is it when thoroughly good metal-work can be done there is so little to be seen; or, to put it crudely, why will not the public in general, and the architects in particular, have this craftsmen's work, which if it were fitly encouraged could easily be produced in far greater quantities than at present? And I shall be grateful if, in your discussion, you will aid me in elucidating this point; for although I have given some seven years' practically gratuitous work, not as a craftsman, but as an organiser, to aiding the creation of work of good craftsmanship, and to interesting the public and the architects therein, and have had great help from the public, I still see that the gulf between the craftsmen and the architects is not altogether bridged, and I do not entirely understand the reason.

I fancy, however, that the principal reason why the architects so rarely entrust their metal-work to the craftsmen is that it is much less trouble to deal with the trade firms. A trade firm employs a traveller who is at the architect's beck and call, who will supply a design in any manner, will adapt it for any metal, and is often in a position to cut his work down to any price. His firm's business will be to execute the work in a certain (perhaps rather mechanical) manner with a mechanical accuracy to design, and, what is of extreme importance, with mechanical accuracy to time. After all, I suppose that is what most people want, and are satisfied when they get it. How is the designer craftsman, the master craftsman, who can turn out really magnificent work under quite different conditions than those of a trade workshop—how is he to compete with such a system? The matter rests largely with the architects. I doubt whether any self-respecting craftsman will employ a traveller, neither do I think the architects should expect it; but, on the other hand, if the architect will give the craftsman the slightest encouragement, he will gladly place at the architect's disposal the result of his practical study and knowledge; but it is not possible to expect him to attain the facility of point of view of the trade traveller, who is working quite genuinely to obtain orders and make money, while the craftsman works equally genuinely with the definite ideal of a revival of the crafts, and is far less anxious to conform to the criticism of the client than to make a really



PASCHAL CANDLESTICK FOR ST. ANNE'S CATHEDRAL, LEEDS: IN CAST, WROUGHT, AND SHEET IRON: GILT.

Executed by the Artificers' Guild. Designed by Mr. Sidney K. Greenslade. Height about 7 feet 6 inches.



ALTAR-CROSS IN SILVER, GOLD, AND BRONZE FOR ST. CHRISTOPHER'S CHURCH, CHICHESTER.

Executed by the Artificers' Guild. Designed by Mr. Edward Spencer.
Height 1 foot 6 inches.

beautiful piece of work. Moreover now, *at last*, there is no reason why the metal-worker, amongst craftsmen, should not in his arrangements be as reliable as the ordinary man of business. Practically all the craftsmen metal-workers have now had ample experience, should have got over that disease of their youth the so-called artistic temperament, and have some sort of business organisation to support them. Moreover in metal-work there is no special reason (as there is in furniture) why the craftsman's price should be unduly high; in my judgment the normal prices of the craftsman metal-worker should be no higher than similar work done through trade sources. Labour and material are pretty much the same for everybody, and the craftsman's working expenses should be no more than those of the man of business—certainly they are not in the workshops with which I am associated.

So that if you, the architects, are prepared to bridge the gulf that lies between you and the craftsmen, and ask them to step over and help you in the detail of your metal-work, you will, whilst taking your share in the work of the revival of the crafts (which many of us think is a work of national importance), obtain at the same time an undoubted distinction of detail in your work. This type of distinction no trade firms can, I fear, give you, because the very essence of the difference between a good piece of work and a poor piece of work lies, as you know, only partially in the design, but largely in the conditions under which it is carried out and the spirit in which it is made. However good a design may be, if it is executed by a workman under ordinary unsympathetic conditions and without a profound interest in his work, and an understanding of the designer's object and spirit, the result will be of no artistic value, and will be a permanent disfigurement to any good surroundings in which it may be placed.

I venture to emphasise this point because when I consider the system under which

contracts are given out, and see the curiously mechanical results, I cannot help supposing that, after all, architects do not place sufficient importance on the conditions under which the work is executed, nor clearly understand why the mechanical results are obtained. It is a question of methods of organisation and of workshop inspiration; and although it is not particularly easy to deal with this question on an occasion like this, it is, I think, of the utmost importance, in relation to work like altar crosses, chalices, and other work used for a definite religious purpose, to realise that unless the workshop and men are imbued with some element of inspired enthusiasm the work will always be an artistic failure. This, I think, the more intelligent section of the public thoroughly understands, and is prepared to make monetary sacrifices to obtain work executed under fit conditions. I make no apology for introducing these remarks, because the question of working in metal depends entirely, like everything else, on how you do it; and how you do it depends inherently on how the men (assuming a good technical training) are feeling when they do it; moreover, I do not doubt that any special interest that attaches itself to the work of the shops with which I am connected comes from the spirit in which much of the work is created.

The matter of the revival of metal-work now rests largely with the architects. The public, I feel sure, are interested; and both in the organisation of which I am a member and in other organisations there are men who have shown themselves qualified to do work of fine character under reasonable business conditions. It is for the architects to say whether these small industries which are now growing slowly are to be allowed to flourish, in which case I feel great hope that the present century will become famous in all time for the distinction of its metal-work.

* * The foregoing Paper was illustrated by a collection of the tools of the craft.



III. ROMANCE IN METAL-WORK. By WALTER GILBERT (of the Bromsgrove Guild).

I FEAR the task which you have allotted to me of confining my thoughts on so immense a subject as metal-work to a few minutes is very great, and after the able addresses of my predecessors it is with sincere apologies I add mine.

I am not bold enough to imagine that I am able to show you any fresh views of the art of metal-work; to lay down any dogmatic formulæ, or even to tell you of the most perfect period of the art which decorated the necessities of existence and developed in the pride of man's intellect, an art of which I am and can only be a student.

But in so far as it touches the personal appeal to me as an artist, I will endeavour to explain a little of that impulse which urges the artist to find expression in those methods and materials with which he feels in most sympathy, and which to my mind had the most influence in the development of the art.

The philosopher will tell you that every individual seeks to increase those feelings which give pleasure, and stifle those which cause him pain. The artist is wise in this knowledge, not only as regards himself, but, possibly unwittingly, he seeks further enhancement of relief and pleasure by conveying his knowledge and his experience, by means of his skill, to others. It is briefly this desire to please others—this eagerness to make others see with his eyes, to feel with his touch, that which is so great a source of pleasure to him—which impels the artist to train his faculties to the clearest pitch.

Primarily it is the emotion or imagination which creates the impulse to give expression in the language of the time; and when the intellect at the various periods reached its highest point, at that time the art burst its blossoms and enriched the world with the calm perfection of the Greeks, the grandeur of the Romans, the domesticity of the Gothic, and the grace and pomp of the Renaissance, and latterly the feeling of our own time, that the glory of

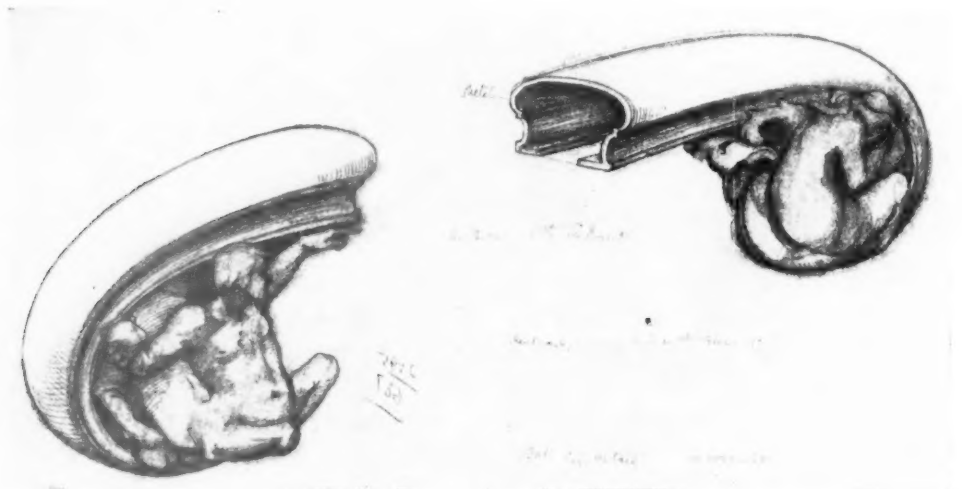


FIG. 1.

patriotism, which is best shown, is in the worship of her distinguished sons. I have said primarily it is the imagination, or rather, the consciousness of imagination—the ruling faculty in all art—which creates art. But the real art is something more than this; it is imagination allied with skill and dexterity in the creation of beauty. Beauty is the criterion of all art, the object of all human longing, and a source of human enjoyment. It is but to the most sordid and debased the great desire and the unfailing source of pleasure, and in such measure as the intellect is trained will that enjoyment be.

The perfect work of art is always the result of some emotional mood, and that work is the most perfect which conveys the dream of the artist most successfully and most fully. The necessity of the door-knocker on the door of the Palazzo Doria, in Genoa, never evolved art, but gave the opportunity to Cellini to express the emotion of defence which a closed door impels. The necessity of doors never gave to the Pisani the impulse to make their glorious creations, but the opportunity of placing on record the emotion they would experience in entering the Baptistery evolved these bronze doors.

The mere necessity of display of water never created Tubi's Fountain of Apollo the Sun-god at Versailles, but was used as an expression of the emotion the artist experienced when he thought of water, its position at Versailles, and its synonymity with the King at his Court. And I take this opportunity of saying, if I may rightly do so to justify my extravagance, that it was something of this emotion which caused me when designing a hand-rail for a small flight of marble steps for one of the most distinguished members of your profession to place a centaur in one volute hurling stones up the steps at a dryad peeping out of the opposite volute [fig. 1], remembering the days of my youth and the frequent use we made of books at school. It is a trivial thing, but an artist's amusement.

The Greek metal-worker or sculptor never sought nor received inspiration from plant form; we find nothing of this in his art save perhaps an occasional altogether subordinate sprig of foliage, for the perfect art must always possess the sensual element of beauty to attract and retain attention. Even to his amphoræ he gives lions' paws as feet; his handles are made of twining peeping serpents, suggestive of curiosity; or Medusa heads, suggestive of defiance of the examination of the curious; or outstretched hands impelling your fingers to grasp; or amorini restraining seahorses eager for the sea of wine those amphoræ contain.

The draughtsman's art and the affectation of delicacy of contour of line were evidently left for a later date. The work was bold and broad and vigorous. The one thing necessary was to caress and illustrate the emotions in their development of the perfect art—the most profound pleasure ensued. If the Roman loved the Bay and the Vine, it was not because of their plant form, but because the bay spoke to him of conquest and the vine was synonymous with the worship of Bacchus and all that revelry and riot of the empire which succeeded the severity and serenity of the Consulate years; and whenever the Roman silversmith introduces that foliage it is arranged, not in modern form, but in wreaths and garlands in such nature that it conveys to your imagination the room festooned and the crowns awaiting the heads of the revellers deep in the worship of their god [fig. 3, p. 162].

I said just now that forms of utility never evolved art, but that they were means of stirring the imagination; and in carefully studying some of the beautiful little bronzes in the Pierpont Morgan Collection, the Salting Collection, and the FitzHenry Collection in the South Kensington Museum, I was amazed at the extent to which the imagination of the great Italian and other masters of the Renaissance had been stirred by the purpose of the objects they had so lovingly and carefully designed.

The masters of the Renaissance took their bronze seriously in their use of it for all



FIG. 2.



FIG. 3.

articles great or small. What happier thought than in the inkstand of the school of Sansovino [fig. 4] in which the artist has endeavoured to tell you by the figure of Marsyas that men are bound by their written words—a lasting rebuke to arrogance; or this other one with Eros and the flaming torch [fig. 2, p. 162]—a little delicate suggestion that even in those days there were such things as love-letters to be written and victims to be obtained? What more delicate satire than this winged female sphinx for a door-knocker [fig. 5]? What more delightful fancy than the skill of this artist's presentation of a salt-cellar—a triton astride a dolphin bearing salt from the ocean [fig. 6, p. 164]?

But this was no original treatment on the



FIG. 4.



FIG. 5.

part of the masters of the Renaissance, and we can imagine that just as Petrarch and Ariosto were inspired by the masters of Greek and Roman literature, so the sculptors of that period were indebted to the Romans and Greeks for their ideals, and it is not far to seek for the source of origin when we see such an example of caressing the imagination illustrated in the use of the seahorse on this Roman water vessel [fig. 7, p. 164]; or Mercury counting his money in the handles of this vase of iron and bronze [fig. 8, p. 165], both belonging to the Pierpont Morgan Collection.

But there is a subtle difference between the work of the Greek—and with the Greek I connect the Roman—and the artist of the Renaissance which I feel (I speak of it only in parenthesis), because it supports a contention I often put forward when I hear some of our leading architects contend that no individuality of the metal-worker is required in the art on their buildings, but simply a repetition of the old work.

The great art of the Renaissance was not the copy of the art of the ancient Greeks, but the result of its inspiration. It was no possible for the Renaissance sculptor to more



FIG. 6.



FIG. 7.

embody the philosophic contemplation of a virtue in godlike form than it is for us to represent our age as one of splendid ceremonies and magnificent parades and pageantries. That age is dead and gone, and we are living to-day. Just as the Renaissance *littérateur* satisfied himself with rhetoric and well-rounded and polished sentences instead of the clear and limpid words of the Classic, so the metal-worker viewed his imagination through decorative spectacles and mysteries, and from that time onward the greatest artists have been those who have felt most strongly this fascination, and have become the poets of Death rather than of Majesty in human shape.

Hitherto in speaking of the Renaissance I have given my views more particularly on the masters of the Italian Renaissance, but in the North the dramatic passion, the sublimity of the imagination, the energy and earnestness of purpose, and truer sincerity of religion, together raised the ideal from what I have previously said had been the result of well-polished scholarship; this in itself was the subtle influence of the vigour and robustness of the long Gothic period.

We lose sight of the dancing girls and youths, crowned with the garlands, of Boccaccio, the inspiration to Donatello and Settignano; we lose sight of the shape and form and mystery of death of Petrarch, the subtle inspirer of Michelangelo; and see the fierce earnestness of Peter Vischer and his school in the tomb of Maximilian, or the homely wit of the German sculptor who symbolised human nature in this lock-case [fig. 9, p. 166], illustrating by the fall of man inherited curiosity to arrive at the forbidden; or, again, what truer example of religious earnestness than this lock to a bedchamber [fig. 10, p. 167]? Can we not imagine the emotion of trust and confidence the occupant of this chamber would feel each night when in closing the door her patron saint would be between her and harm? And the fact alone that her guardian angel had been so skilfully wrought into the handle of the lock would surely forbid unlawful entry and fortify her courage. And so I could go on giving you example after example, when in the best periods of art men did not scorn the highest thought and fancy to even the smallest things; and I cannot imagine that then they thought to show their skill and care, and that appeal to the emotions was making too much of things so small. We certainly are not more artistic or keener lovers of the beautiful now than when every clerk could converse on art, and cities celebrated the masterpieces of their artists by pageants, and allotted special taxes for the triumphs of architecture. Why should we raise the contention now?

I have shown you in a way the influence which was at work amongst the metal-workers of the Greeks and Romans, the Gothic period and the masters of the Renaissance. I will now

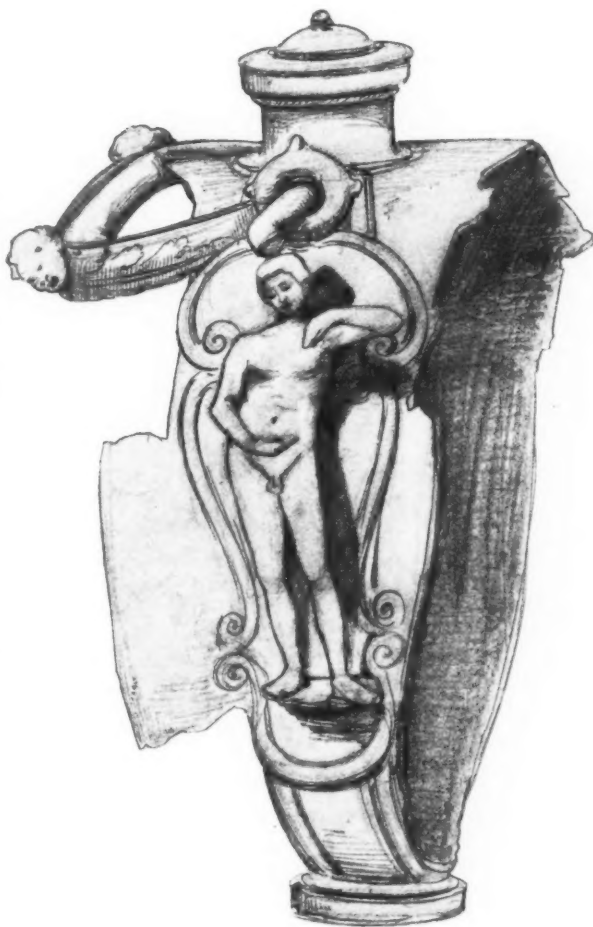


FIG. 8.

endeavour to trace the influence which inspired later times. We have passed through the philosophic calm illustrated by the metal-work of the Greek, the pride of the Roman in his magnificence and extravagance for glory of self, the devout religious superstition and earnestness of the Gothic period, the learning and the attendant desire for knowledge of the Renaissance, its conflict with religion, and its desire for freedom, and arrive at that period in France when the kings dreamt of glory and expansion, and the love of France became manifest in the worship of its kings. Who can dispute but that it was this feeling which gave Lamour and Hervé the impulse to conceive the feeling and magnificence so royally expressed in the screens round the forecourt of the Palace of Stanislaus at Nancy [see headpiece, p. 145]. Who can doubt but that this courtly impulse was the origin of Guibal and Cyflle's



FIG. 9.

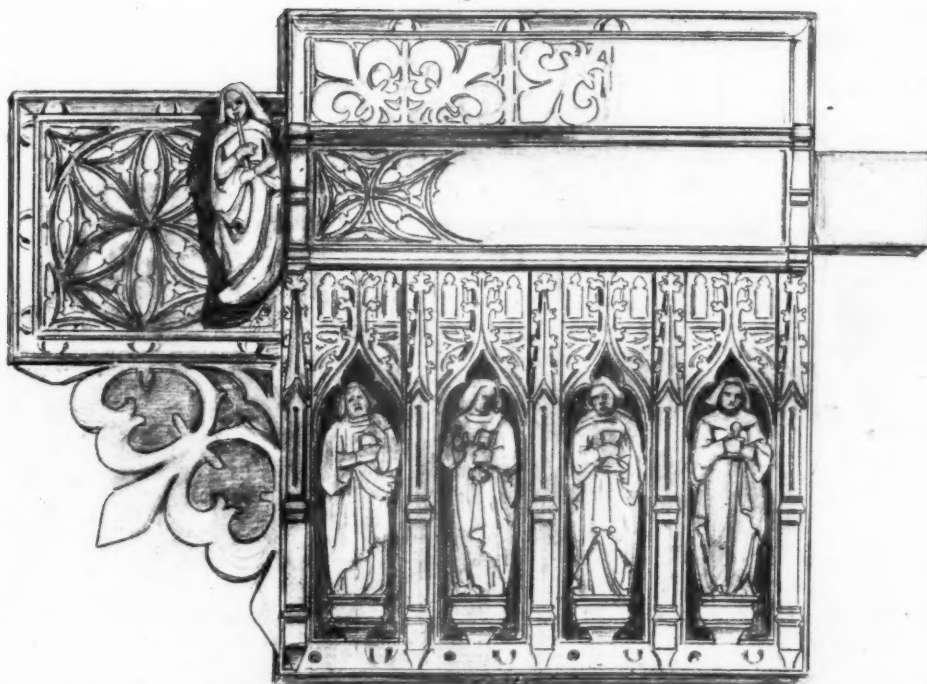


FIG. 10.

suggestion of Neptune and Amphitrite paying homage to Stanislaus? Or at Versailles who can look from the Fountain of Neptune and see through the bosquets in the distance the Palais, and not realise the amazing magnitude of the conception of the elder Adam and Girardon, the truly overwhelming grandeur of the sea-god with his court eager, as it were, for the expression of his supreme will? Who can doubt but that the sculptor of those lead figures expressed the all-pervading thought of the glory and magnificence of France personified in the monarch in that Palais, or by the personification of those figures on the upper terrace of all the rivers of France and their fruitfulness was not impelled by the desire to express that the rivers of France came to pay homage to the source of all their glory?

From the worship and adoration of patriotism in the person of their kings in the days of freedom and democracy it was a small stride to deify the republic, its progress and triumph, both in the abstract, as in this masterpiece of Dalou [fig. 11, p. 168], and in the personage of her most distinguished sons. Who can deny but that it is the glory of France that the metal-worker wishes to proclaim in forging those gates to the Apollo Gallery in the Louvre [fig. 12, p. 169], or in this statue to Delacroix [fig. 13, p. 170]? When Time, with Art applauding, holds up Fame to crown the painter with the wreath of immortality, who can deny but that the sculptor wished to proclaim the unsurpassable superiority of France in a golden age? Who can fail to see but that the sculptor wished to convey in this statue of Danton [fig. 14, p. 171] that France was the Fountain of Liberty, and that his countrymen, even the young throbbing with uncontrollable earnestness, were eager to

translate the doctrine of the freedom of brotherhood and glory of race at any cost for the glory of ideal? Or in the statue to La Fontaine that he wishes to tell you of the wit of this unsurpassable son of France [fig. 15, p. 172]?

And so I could go on telling you that under all great art of the metal-worker, whether



FIG. 11.

the thing to be done is great or small, there must always be the same working of the intellect, the same poetic feeling for the ideal in story, the same tenderness for material. No better example can be given than this by the great modern master in the loving treatment he adopted for the figure of St. Elizabeth of Hungary for the tomb of the late Duke of Clarence [fig. 16, p. 173]. It is the most beautiful treatment of one of the most noble attributes of royal

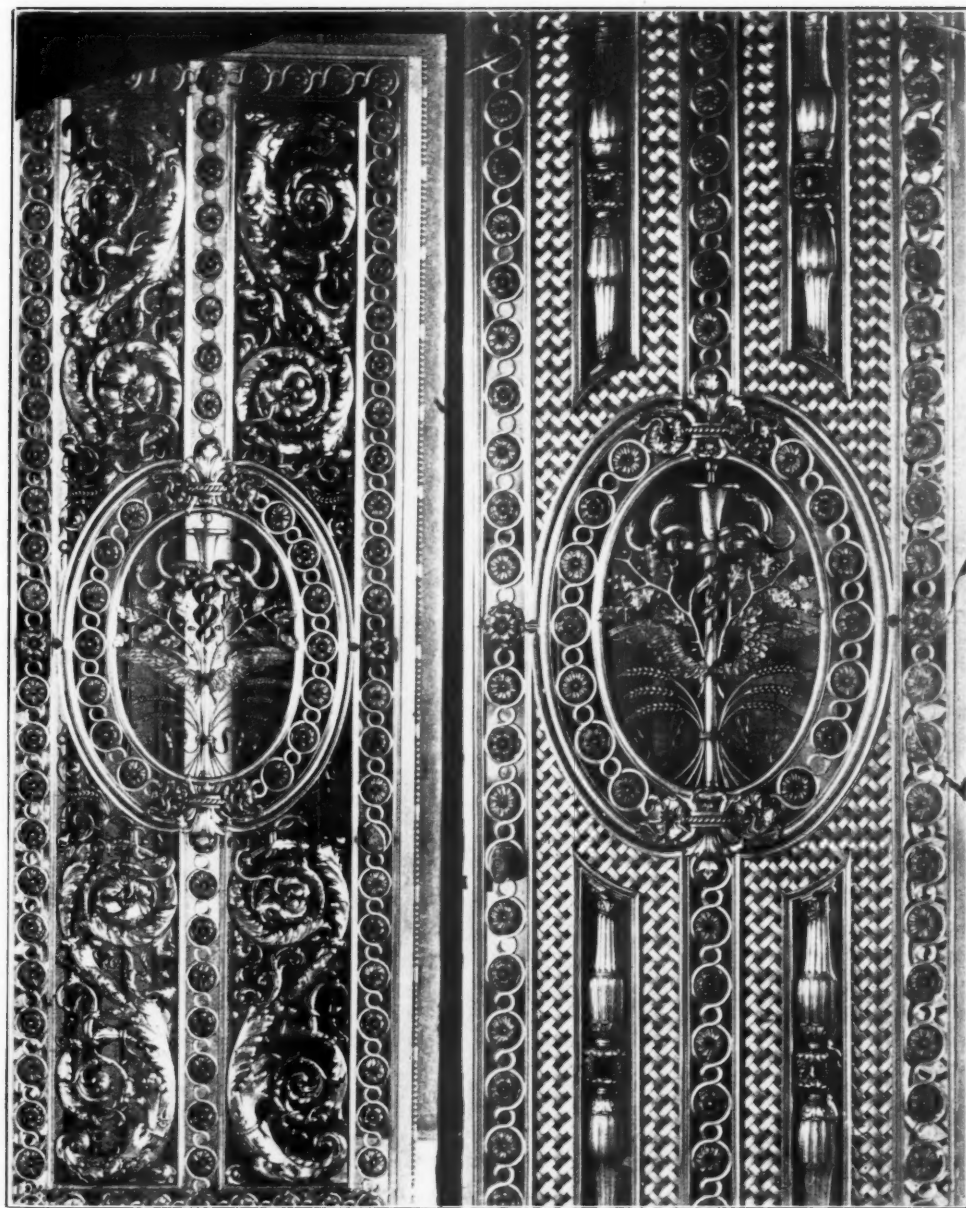


FIG. 12.



FIG. 13.



FIG. 14.



FIG. 15.



FIG. 16.

duty—royal charity and anxiety for the welfare of the children of the nation. Of such does great art come; and it is the duty of us all not to neglect the artist who can, as in the case of such a master mind as this, hand down the splendour of his country and the nobility of its aim and ideals.

Now for the future. Let us not hastily condemn any struggle for individual treatment; the past ages, as I have previously said, are past and gone—to be learnt from, not to be slavishly copied. The work was for a period of existence, and expressed the life of the time. To revive art, scholarship and intellectual training are necessary. Intellectual art is not to be ignored, nor is it debasing art to sell it; the old masters had their workshops for execution and their shops for the sale of their creations. What we require is, not too arbitrary an assertion on the part of the architect of what is good or bad, and for which often an architect owing to the enormous amount of work he has to deal with and to his present-day methods of training is not too well qualified to judge, but a stimulus to thought and energy for the artist, that the architect may gather round him a band of men working eagerly in close co-operation with him for the glorification of his buildings and an enhancement of his fame.

DISCUSSION OF THE FOREGOING PAPERS.

MR. JOHN BELCHER, A.R.A., President, in the Chair.

MR. GEORGE HUBBARD, F.S.A. [F.], in proposing a vote of thanks for the Papers, said that the three lecturers had approached the subject of metal-work from three entirely different points of view, and he thought that Mr. Swan's lecture was one of the most instructive that he had ever heard, giving as it did the early history of art metal-work. He was extremely pleased to hear Mr. Swan say that he thought that the Japanese were the Greeks of the present day in the excellence of their art in metal-work. Not only was it in the excellence of their metal-work, such as the Komai work—which is unapproached by any other nation—but in their ivory carvings by their great artist Okawa and others, which for absolute perfection and truthfulness to every detail in nature are unequalled by the artists of any European country. It was extremely interesting to hear the description of the *cera perdata* process, which is so exceedingly well described by Benvenuto Cellini in his autobiography. He had never before had the opportunity of seeing this process in the casting of bronze, which was made so clear by the exhibits, showing how the wax was allowed to run out of the moulds and the gases allowed to escape. It was thanks to such lectures as these that architects got an insight into the inner workings of the arts they were supposed to practise, and the thanks of the audience were due to the lecturers that evening for coming down to instruct them. Mr. Fordham had treated the subject from a practical point of view, as seen in the workshops. Mr. Hubbard explained that in his innocence he had always thought that it was the smith whose "brow was wet with honest sweat," but he found that it

was not the smith at all, it was the "striker" who really should have earned that distinction. He could not help feeling, in spite of the wonderful tools that were used in the workshop, that the work produced to-day in England was far inferior, from an artistic point of view, to that of France or Germany, and certainly no country to-day equalled the art of the mediæval metal-workers. The beautiful set of slides exhibited by Mr. Gilbert were most interesting and instructive, for they showed how the sentiment of the designer was embodied in his work, and the inspiration of this sentiment contributed to the perfection of the art he practised. He expressed the gratitude he felt, and the gratitude felt by all present, for the able and interesting Papers they had heard.

MR. C. HARRISON TOWNSEND [F.], in seconding the vote of thanks to the three gentlemen who had contributed so much to their knowledge of the subject treated, said he had been asked by Mr. Fordham to convey to the Meeting his apologies for having to leave before the proceedings closed, and expressed his own regret that Mr. Fordham was not present to receive their thanks for his admirable Paper. Mr. Fordham had contributed to the interest of the evening by opening the door of the craftsman's workshop, and showing them the implements with which he worked, and how he used them. Mr. Swan, on the other hand, who had been retrospective in the opening of his Paper, became, perhaps, rather too hopeful at its close when he led them to dream dreams of a London where their statues might not only be washed clean from time to time, but might even be occasionally gilded. He did not, however, know

whether the record of what their statues had gone through in this latter process was such as to make them wish to continue or repeat the experiment, when they remembered, for instance, the monument at the top of Sloane Street, from which the County Council had had recently to remove the last lingering vestige of gilding. Mr. Walter Gilbert, finally, had imported into his subject what was a necessary factor in speaking of art—viz. sentiment, and he had shown them what was the inspiring cause and what was the ideal of the beautiful works he had illustrated by his slides. He had pointed out that the artist could, as Emerson said, "give to even pots and pans all the glitter of romance."

THE PRESIDENT, in putting the vote of thanks, said they were all very grateful to the readers of the Papers. He must express his special thanks to Mr. Swan for coming among them and giving his most interesting and delightful Paper, full of enthusiasm and, if he might say so, profound knowledge modestly veiled. They were greatly indebted to him for the beautiful examples of work he had brought for them to see. He quite felt with Mr. Swan how terrible is that dead blackness of our statues in London. He could only wish with him that some means might be found for keeping them clean and bright. The County Council, or other authority, had endeavoured to keep them clean, and had coloured some of the statues with a sort of patina, which in its shiny condition looked very much like Cadbury's chocolate! But even that did not last long: the shine still remained, but the colour disappeared. Various attempts had been made to brighten the statues by gilding, as Mr. Townsend had referred to in Mr. Onslow Ford's statue of Lord Strathnairn at Sloane Street. Parts of the statue had been gilded—all the feathers in the hat, for instance; but it did not last very long, and the County Council had evidently given it up as hopeless, for there was nothing left now in the way of gold. The only thing he saw the last time he passed it was a bird's nest in the middle of the feathers, with the loose straw hanging down, which did not much improve the effect! Certainly they had the Prince Consort Memorial, where the statue had been gilded again; but up to the second gilding it looked a very black apex to the pediment of white sculpture at the base; and it was not a very great success. They had again Gilbert's fountain, where the top figure was, he believed, aluminium. He remembered Gilbert saying he hoped it would keep its colour; but it had got as black as the rest of these monuments. True, it had lately been cleaned, and now it looked like Portland cement! Mr. Swan had referred to the Duke of Wellington's statue, which he always admired. When he (the President) last saw it at Aldershot it had a most delightful colour: it was in some parts brilliant green—every feather of the hat was bright green—and the effect

was most festive. He was glad to hear Mr. Swan refer to the columns of St. Martin's Church. The silver grey of the washed side of the columns had a most delightful effect. He knew the public generally took it to be a fault of Portland stone that it should be grey on one side and black on the other. Efforts had been made indeed to wash the whole of the exterior of St. Paul's and other buildings of Portland stone in order to get rid of it. It was, however, one of the beauties of Portland stone. The contrast was beautiful. The black intensified the appearance of the silver grey of the stone. Mr. Montague Fordham had given them a great deal of information of value to them. There was no doubt that the more architects knew of the details of the craftsman's work, and the limitation of their craft, the better it was for them. That might be said indeed of all the arts. The more they could familiarise themselves with the methods and processes adopted by various craftsmen the better they should agree when working together. He could not quite follow Mr. Fordham with regard to his lecture to architects. If architects found themselves associated with a good artist they would stick to him; but if they were at any time supplied with bad work, then they would not employ him again. That was the whole secret of the business. It was not a question of what the artist called himself, whether he worked in a society, a company, or a guild. So long as his work was good the architect would respect him and stick to him. Mr. Gilbert's Paper was most delightful—intellectual and poetical; and his allusion to "purpose" in art applied to all—quite as much to architecture as to metal-work or any other craft. The illustrations shown reminded them in a most delightful way of how "purpose" in art assists the artist in giving expression and character to his work.

MR. JOHN M. SWAN, R.A., replying to the question *re* ancient castings, said that in the old tombs of Japan had been found stone moulds which were used in the bronze age for castings, and of course the swords must have been beaten bronze. He had particularly mentioned solid bronze because there was solid casting of solid lead. He had brought a specimen bearing upon that particular subject. It stood their climate so well, especially in old fountains and garden statues. Touching again on that point, he had brought a few specimens of coins of the time of Hadrian, showing the various patinas caused by the various earths and salt marshes in which they had been buried, and the iodine of salt water or sea.

MR. WALTER GILBERT, responding to the vote of thanks, said with regard to the question of gilding, that if the architects would only back up the artists in this matter there would be a great deal more gilding done; but their modesty as Englishmen made them afraid of having too much show.



9, CONDUIT STREET, LONDON, W., 27th Jan. 1906.

CHRONICLE.

The President's "At Home."

Some two hundred and fifty members, metropolitan and provincial, were recipients of the President's hospitality at the "At Home" held in the rooms of the Institute on Monday evening, the 15th inst. Invitations had been accepted by a much larger number, but many were doubtless prevented from coming by the heavy rain which set in towards night. A feature of the evening was the interesting exhibition of working drawings that the President had been able to arrange for the occasion. The exhibition, which was generally representative of current practice, consisted of working drawings and views of buildings, public, commercial, and domestic, erected or in course of erection by the following architects: Mr. Reginald Blomfield, A.R.A., Messrs. G. F. Bodley, R.A., and Gilbert Scott (who sent drawings of Liverpool Cathedral), Mr. Wm. Flockhart, Messrs. Ernest George & Yeates, Messrs. Lanchester & Rickards (Deptford and Cardiff Town Halls), Mr. Ernest Newton, Professor Beresford Pite, Mr. Leonard Stokes, and Sir Aston Webb, R.A. (Royal College of Science and Victoria and Albert Museum). Advantage was also taken of the opportunity to show some Institute treasures which from lack of accommodation for their proper display have had to remain stowed away out of sight. The most interesting of these was the series of casts of consular and ecclesiastical diptychs, tablets, casket-lids, panels, &c., dating from the early centuries of the present era, many of them beautiful specimens of the sculptor's art. There were also on view a series of architects' medals, and tokens struck in commemoration of historic events, the opening of notable buildings, &c.

THE PRIZES AND STUDENTSHIPS 1906.

Council's Deed of Award.

The Designs and Drawings submitted for the Institute Prizes and Studentships are now on exhibition in the Gallery of the Alpine Club (entrance in Mill Street, Conduit Street, W.).

The Council's Deed of Award, read at the General Meeting of the 22nd January, gives particulars of the competitions and the results thereof as follows:—

THE ROYAL INSTITUTE SILVER MEDALS.

(i.) *The Essay Medal and Twenty-five Guineas.*

Six Biographies of British Architects (deceased) practising in the Nineteenth Century were received for the Silver Medal under the following mottoes:—

1. "Our Athenian."
2. "Terra Incognita."
3. Device of a Volute.
4. "Ars longa vita brevis."
5. "Gargoyle."
6. "Shingalee."

The Council have awarded the Medal and Twenty-five Guineas to the author of the Biography of "George Devey, F.R.I.B.A. (1820-1886)," submitted under motto "Terra Incognita" [Walter Hinde Godfrey, 11 Carteret Street, Queen Anne's Gate, S.W.], and Certificates of Hon. Mention to the authors of the Biographies bearing the mottoes respectively of "Gargoyle" [Martin Shaw Briggs [A.], Wharfedale, Otley] and "Shingalee" [Albert E. Bullock, 45 Fairlawn Avenue, Chiswick, W.].

(ii.) *The Measured Drawings Medal and £10 10s.*

Fifteen sets of Drawings were sent in of the various buildings indicated, and under mottoes as follows:—

1. "A.D. 1690": 6 strainers (Hampton Court Palace).
2. "Ami": 4 strainers (Château de Montmirail, Sarthe, France).
3. "Aus Picante Deo": 4 strainers (Queen Anne's Orangery, Kensington).
4. "Fiat Lux": 6 strainers (Le Grand Trianon, Versailles).
5. "K": 6 strainers (Banqueting Hall, Kensington Palace).
6. "Mecca": 5 strainers (St. Alfege, Greenwich).
7. "Omega": 6 strainers (St. Anne's Orangery, Kensington Palace).
8. "Qui s'excuse s'accuse": 6 strainers (Le Petit Trianon, Versailles).
9. "Reflex": 5 strainers (St. Stephen's, Walbrook).
10. "San Marco": 6 strainers (Santa Maria dei Miracoli, Venice).
11. "Sansovino": 6 strainers (Old Library of St. Mark's, Venice).
12. "Sigillu Ecclesie Trinitatis d. Toynham": 5 strainers (Christchurch Priory, Hants).
13. "Try": 6 strainers (St. Peter Mancroft, Norwich).
14. "Vil God I Zal": 6 strainers (Castle Menzies, Aberfeldy).
15. "Wren": 4 strainers (Banqueting Hall, Kensington Palace).

The Council have awarded a Silver Medal and Ten Guineas to the delineators of Hampton Court Palace and Christchurch Priory, submitted under the mottoes respectively of "A.D. 1690" [Albert Edwin Poley, Willoubank, Hampton Hill] and "Sigillu Ecclesie Trinitatis d. Toynham" [George John Coombs, 25 Portman Road, Boscombe], and a Certificate of Hon. Mention to the delineator of

Santa Maria dei Miracoli, submitted under the motto "San Marco" [Percy Wells Lovell, 18 Hampstead Lane, Highbury].

THE TRAVELLING STUDENTSHIPS.

(i.) *The Soane Medallion and £100.*

Ten designs for a Realisation of the Ideal Mansion described in Bacon's Essay "Of Building" were submitted under the following mottoes:—

1. "Comme Ci": 4 strainers.
2. "Fraxinelle": 4 strainers.
3. "John Thorpe": 4 strainers.
4. "Palazzo": 5 strainers.
5. "Peruzzi": 5 strainers.
6. "Regal": 5 strainers.
7. "Viscount": 6 strainers.
8. "White Lion": 6 strainers.
9. "Zed": 6 strainers.
10. Device of a Dee on the Wing: 5 strainers.

The Council have awarded the Medallion and (subject to the specified conditions) the sum of One Hundred Pounds to the author of the design bearing the motto "John Thorpe" [Walter S. George, Oakenclough, Linchurst, Ashton-under-Lyne] and a Certificate of Hon. Mention and Ten Guineas to the author of the design with the motto "White Lion" [Robert Atkinson, 29 Sherwin Road, Lenton, Nottingham].

(ii.) *The Owen Jones Studentship and £100.*

Five applications were received for the Owen Jones Studentship from the following:—

1. W. J. Davies: 6 strainers.
2. Matthew Dawson: 6 strainers.
3. Charles Gascoyne: 6 strainers.
4. A. R. H. Jackson: 6 strainers.
5. Arthur D. Nicholson: 6 strainers.

The Council have awarded the Certificate and (subject to the specified conditions) the sum of One Hundred Pounds to Mr. Charles Gascoyne, 6 Gray's Inn Square, W.C., and Five Guineas each to Messrs. W. J. Davies [A.], Thornton Dene, Sidcup Park, Kent; A. D. Nicholson, 7 Park Grove Terrace, Glasgow West; and A. R. H. Jackson, c/o Professor Beresford Pite, Royal College of Art, S. Kensington.

(iii.) *The Pugin Studentship and £40.*

Twelve applications were received for the Pugin Studentship from the following:—

1. J. W. Carter: 5 strainers.
2. G. Drysdale: 6 strainers.
3. Walter S. George: 6 strainers.
4. Jordan Green: 6 strainers.
5. T. Gordon Jackson: 6 strainers.
6. W. H. MacLucas: 6 strainers.
7. Oswald P. Milne: 6 strainers.
8. J. R. M. Morison: 6 strainers.
9. J. S. Richardson: 6 strainers.
10. G. S. Salomons: 6 strainers.
11. H. W. Simister: 6 strainers.
12. B. Cecil Westwick: 3 strainers.

The Council have awarded the Medal and (subject to the specified conditions) the sum of Forty

Pounds to Mr. G. Drysdale, and a Certificate of Hon. Mention to Mr. Jordan Green [A.], 33 South Road, Handsworth, Birmingham.

(iv.) *The Godwin Medal and £65.*

Five applications were received for the Godwin Bursary from the following:—

1. Alfred E. Corbett.
2. C. E. Power.
3. F. Tomlins.
4. H. Inigo Triggs.
5. A. H. Verstage.

The Council have awarded the Medal and (subject to the specified conditions) the sum of £65 to Mr. H. Inigo Triggs [A.], 8 South Parade, Bedford Park, Chiswick.

(v.) *The Tile Certificate and £30.*

Twenty-one Designs for an Open-air Swimming-Bath with an Arcaded or Colonnaded Enclosure were submitted under the following mottoes:—

1. A.D. 1906: 5 strainers.
2. Ajax: 4 strainers.
3. Aqua: 4 strainers.
4. Aquarius: 6 strainers.
5. Aristobulus: 4 strainers.
6. Bo'sun: 4 strainers.
7. Cui Bono? 5 strainers.
8. Dolphin (white strainers): 4 strainers.
9. Dolphin (brown strainers): 4 strainers.
10. Dorian: 5 strainers.
11. E Pluribus Unum: 4 strainers.
12. Ellipse: 4 strainers.
13. Fiat Lux: 5 strainers.
14. Hodden Gray: 6 strainers.
15. K.L.: 5 strainers.
16. Michaelange: 4 strainers.
17. Pleiades: 2 strainers.
18. Seed: 5 strainers.
19. Sphinx: 6 strainers.
20. Ultra: 5 strainers.
21. 1905: 5 strainers.

The Council have awarded the Certificate and (subject to the specified conditions) a sum of Thirty Pounds to the author of the design bearing the motto "Dolphin" (white strainers) [Alick George Horsnell, South Primrose Hill, Chelmsford], a Medal of Merit to the author of the design under motto "Ellipse" [Charles Bulman Pearson, 12A Cheapside, Lancaster], and a Certificate of Hon. Mention to the author of the design under motto "Dorian" [Cecil Laurence Wright, 66 Bolingbroke Road, W. Kensington, W.].

THE ARTHUR CATES PRIZE: £40.

One application for the Arthur Cates Prize was received from Mr. John Hatton Markham [A.], 9 Glenbrook Road, West Hampstead, N.W., and the Council have awarded him the prize.

PRIZE FOR DESIGN AND CONSTRUCTION.

The Grissell Gold Medal and £10 10s.

Six designs for a Stone Skew Bridge were submitted under the following mottoes:—

1. "Byland": 3 strainers.
2. "Catenary": 3 strainers.
3. "Evocatus Paratus": 6 strainers.
4. "Nil": 4 strainers.
5. "R.": 6 strainers.
6. "Utile Dulci": 3 strainers.

The Council have awarded the Medal and Ten Guineas to the author of the design bearing the motto "Utile Dulci" [George Nott, 8 Market Street, Leicester].

THE ASHPITEL PRIZE 1905.

The Council have, on the recommendation of the Board of Examiners (Architecture), awarded the Ashpitol Prize to Mr. John Hatton Markham [A.], 9 Glenbrook Road, West Hampstead, N.W., who was registered Probationer in 1900, Student in 1903, and passed the Final Examination in June 1905. The Council have further awarded a Prize of Books, value £10, to Mr. Albert Robert Myers, 206 Bruntsfield Place, Edinburgh, in recognition of his meritorious work at the Special Examination, November 1905.

THE TRAVELLING STUDENTS' WORK.

Suane Medallist 1904.—The Council have approved the drawings executed by Mr. Frederic J. Horth, who was awarded the Medallion in 1904, and who studied in Italy.

Owen Jones Studentship 1904.—The Council have approved the work of Mr. Wm. Davidson, who was awarded the Studentship in 1904, and who studied in Italy.

Godwin Bursary 1904.—The Council have approved the Report of Mr. H. Phillips Fletcher [F.], who was awarded the Godwin Bursary 1904, and who visited the St. Louis Exhibition.

Godwin Bursary 1905.—The Council have approved the Report of Mr. F. R. Hiorns [A.], who was awarded the Godwin Bursary in 1905, and who has reported on Municipal Administration in France.

Pugin Studentship 1905.—The Council have approved the work of Mr. Edward Garratt, who was elected Pugin Student for 1905, and who travelled in Oxfordshire, Somerset, Dorset, Gloucestershire, Wiltshire, and Hampshire.

Tite Prizeman 1905.—The Council have approved the work of Mr. R. Atkinson, who was awarded the Tite Prize in 1905, and who studied in Italy.

The Deed of Award bears date 22nd January 1906, and is signed by John Belcher, *Chairman*; John Slater, C. Harrison Townsend, Alfred W. S. Cross, *Members of Council*; Alexander Graham, *Hon. Secretary*; W. J. Locke, *Secretary*.

Seventh International Congress of Architects, 1906.

The Executive Committee have made arrangements to take the whole of the Grafton Galleries, Grafton Street, Regent Street, as the headquarters of the Congress during its meeting in London next July.

A Beautiful London.

Lord Plymouth [H.A.], who, it will be remembered, as Lord Windsor held the office of First Commissioner of Works and Public Buildings in the late Government, in an article with the above title in the *Tribune* of the 22nd inst. says:—"The time has passed, let us hope, when London—even educated London—was indifferent to art and architecture. The traffic problem has given the spur to many of London's latest improvements in the direction of street widening, and, as a consequence, much rebuilding of shop fronts and business premises is being found necessary. Neither Government nor municipalities can exercise any control over the designs and elevation of buildings (unless they are the owners of the land, and in a position therefore either to build themselves, or to make agreement with their building tenants), except in so far as the law enables the London County Council to make regulations limiting the height of houses or controlling their structure for purposes of securing air, light, and sanitation.

"So long as the present system prevails, so long must we suffer from this uncontrolled variety of individual tastes, where the owner is not concerned with any other building than his own, and selects his designs without reference to the height and style of the surrounding houses, or, still worse, with the advertising object of cutting his neighbour out. Happily there are signs that the private owner is not wholly indifferent to good architecture—indeed, there are notable instances to the contrary in some of the streets in the City and in the West End. I am far from advocating complete uniformity in the style of houses. Variety is characteristic of London, and, softened by the smoky atmosphere, it adds much to the general picturesqueness of our capital.

"But what really is wanted is some continuity of idea and effect in dealing with the finer sites of the metropolis. With Somerset House and Waterloo Bridge as the starting-point, what might the Embankment have become had there been some guiding spirit to direct and control the great building operations of the past fifty years? Whitehall is another instance of a magnificent site (being the main approach to Westminster Abbey and the Houses of Parliament) which loses in effect from the absence of any general scheme or design.

"Whatever architectural merit the Government offices may possess individually, they are the works of different architects who appear to have paid but scant attention to the relation of their own buildings to those immediately surrounding them. (I do not speak of the blocks of Government offices now in course of erection.) Hence the present effect of patchwork, which it is almost too late to

remedy. From the nature of the case, the Government having to acquire the land and erect the buildings as they were required, no complete scheme could have been carried out for a considerable time; but the point is that no general design for utilising the frontages of Whitehall has ever been adopted, if, indeed, it ever existed; and that by the exercise of some foresight and by continuity of policy, Whitehall might have become a splendid thoroughfare of well-proportioned and well-balanced Government offices, which would have been designed, not only with some regard to each other, but with much regard to the elevation of the Banqueting Hall and the Horse Guards.

"It is useless to lay the blame of this neglect upon successive Governments or First Commissioners of Works. The length of the latter's tenure of office is uncertain; if his ordinary work is properly looked after, little time is left for the initiation of big schemes for laying out and improving London, and it is a matter of history that the projects and schemes of some First Commissioners have been entirely upset by their successors. Neither has the London County Council any power or control over buildings outside the limits previously stated. What, then, is to be done?"

"Sir Aston Webb, when President of the Royal Institute of British Architects in 1903, strongly urged the necessity of establishing some permanent consultative body, to whom questions of public improvements might be referred. Mr. John Belcher, President in 1904, went still further, and proposed that the First Commissioner of Works should act as a Minister of Fine Arts—possessing the necessary despotic powers—with the aid of an advisory committee; and the creation of a Ministry of Fine Arts has, in the September number of the *Nineteenth Century*, found a powerful advocate in Mr. M. H. Spielmann.

"There is, no doubt, much to be said for the sweeping change that would be brought about by the creation of a Minister of Fine Arts, the most important, perhaps, being the co-ordination of matters, generally of an artistic character, which are now controlled by various departments, under one head. But before this were done the most careful consideration would have to be given to the powers with which this new Minister and his department were to be invested; and to transfer the control of matters hitherto successfully performed by various bodies to a new and untried department could not be done hurriedly or with a light heart.

"Seeing, therefore, little prospect of such a Minister being appointed in the near future, I think that much good might be done, or to put it conversely much harm might be averted, by proceeding on the lines suggested by Sir Aston Webb, and by establishing some permanent advisory committee to which in the first place the Govern-

ment might refer matters touching the erection or improvement of public buildings and national monuments under their control.

"If such a committee were properly constituted its authority would very soon be recognised, and it might then be possible to give it wider influence and to deal, without unduly trespassing on the individual rights of private persons, with other than Government buildings—at least in certain defined positions where the style and character of an elevation were considered of supreme importance."

Appointment of District Surveyors.

Mr. Thomas Henry Watson [F.], President of the District Surveyors' Association, has addressed the following letter to the London County Council:—

8th Jan. 1906.

MY LORDS AND GENTLEMEN,—I am desired on behalf of the District Surveyors of London to address you on the question of certain proposals which have been submitted to you by your Building Act Committee involving very serious and important changes in the terms of the appointment of District Surveyors.

From the report of the Council's proceedings as printed, to which our attention has been drawn in the public Press, it would seem that the changes suggested would include:—

1. (a) A reduction in the number of districts from 57 to 33.
- (b) A consequential increase in the size of the districts.
- (c) A corresponding diminution in the number of qualified professional men acting with statutory authority.
- (d) A consequential devolution of a large portion of the work of supervision to a number of assistants.
2. A dual system of payment of District Surveyors
 - (a) by salary in respect of the duties they perform under the London Building Act, 1894, and
 - (b) by fees in respect of their duties under the Amendment Act of 1905.
3. The payment of building fees to the Council in respect of works executed under the Act of 1894 and to the District Surveyor in respect of works executed under the Act of 1905.

It will be manifest that changes such as these may easily lead to confusion and misunderstanding, and tend to increase the difficulties of efficient administration of the law.

The District Surveyors respectfully submit that the supervision of building operations has been carried out by highly-trained men—many of whom have occupied the highest positions in their profession—that the public has grown accustomed to pay professional fees for professional services, thus adequately rendered, and it is at least doubtful whether the suggested payment by salary will attract educated men of the first ability; from a professional point of view therefore the reflection suggests itself that changes in the direction indicated above may not be in the interests of the best and most efficient administration of the Building Laws.

The District Surveyors do not wish to suggest that there may not be points of detail in the present system which may with advantage be altered, and they desire me to add that they will be happy, by conference or otherwise, to assist the Council in its efforts to improve a system which, in the opinion of many, has hitherto worked to the public advantage.—I am, &c.

THOMAS HENRY WATSON.

Alexander Thomson Travelling Studentship.

The Council of the Glasgow Institute of Architects, Trustees of the Alexander Thomson Memorial, announce that they have awarded the Prizes in their gift to the following:—First Prize, £60, to Mr. James Whitelaw, of Loanroft, Uddington; Second Prize, £20, to Mr. F. M. Craik, 136 Stanmore Road, Glasgow. The subjects set competitors were: (1) A Study of a Classic Building; (2) Design for a Cascade and Portico in a Public Park. The winner of the first prize is required to go on a sketching tour for three months in pursuit of his architectural studies; and the second to spend three weeks making drawings from the reproductions of Classical Buildings in the British Museum, or elsewhere, as the Trustees may agree to. These prizes are competed for every third year.

American Architects' Directory.

A copy has been received of the *American Architects' Directory and Specification Index for 1905-1906* [W. T. Comstock, 23 Warren Street, New York], being the seventh year of issue. It contains a complete list of the architects of the United States and Canada, classified by States and towns, indicating those who are members of the American Institute of Architects; also the names of the officers and locations of the different architectural associations in the United States. A specification index of prominent dealers and manufacturers of building materials and appliances, and a list of the building departments of the leading cities, with the names of the principal officers, are included in the present issue.

MINUTES. VI.

At the Sixth General Meeting (Ordinary) of the Session 1905-06, held Monday, 22nd January 1906, at 8 p.m.—Present: Mr. John Belcher, A.R.A., *President*, in the Chair, 41 Fellows (including 13 members of the Council), 49 Associates (including 2 members of the Council), 2 Hon. Associates, and several visitors—the Minutes of the Meeting held 8th January [p. 134] were taken as read and signed as correct.

Mr. Howard Chatfield Clarke, *Fellow*, attending for the first time since his election, was formally admitted by the President.

Papers on METAL-WORK were read and illustrated by Messrs. John M. Swan, R.A., Montague Fordham, M.A., and Walter Gilbert.

The Secretary having read the Deed of Award of Prizes and Studentships 1906, made by the Council under the Common Seal (*ante*, p. 176), the sealed envelopes bearing the mottoes of successful competitors were opened and the names disclosed.

The Meeting then proceeded to the discussion of the Papers on Metal-work, and a vote of thanks was passed to the authors by acclamation.

The proceedings were brought to a close at 10.15 p.m.

ALLIED SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

At the rooms of this Society on Thursday, the 11th January, a paper was read on "The Better Housing of the Artisan Population" by Mr. W. P. Rylatt, who won the prize for an essay on the subject. Mr. Rylatt said: "The question of the housing of our artisan population is one of the greatest problems of the present day. Ever since 1851, when the attention of Parliament was first drawn to the disgraceful state of the houses of the artisan classes in London and in other large cities, Acts have been passed and measures taken to improve the condition of these dwellings. A very great fact in the health of the people, physical and mental, is a cheeriness of surroundings and a pleasant outlook obtained by providing plenty of open spaces, laid out as gardens, such as is carried out on the Millbank estate in London. Many difficulties are met with in carrying out schemes of workmen's dwellings in large cities, one of which is the high price of land, and another is the increase, of recent years, of the cost of materials and labour. Every advantage should be taken of cheaper methods of building, and perhaps a more reasonable application of the by-laws by the local authorities would allow more latitude in this respect. In a workman's dwelling scheme everything should be cheap and simple, consistent with good workmanship. The most economical plan of tenement buildings is a parallelogram, two rooms deep, and with a common staircase, everything, as far as possible, fire-resisting. All staircases, landings, and passages should be reduced to a minimum. To bring a little brightness into the lives of the tenants the buildings might be planned round a paved court or quadrangle, opening into a street by one or more archways, and laid out with flower-beds. This court might be overlooked from balconies on each floor. Much might be done by providing cheaper and quicker means of transit by electric car and railway to enable the better class of artisan to live in the suburbs, and so leave more dwellings in the congested parts of the city for the poorer class of workmen. In providing dwellings for the artisan class private enterprise has signally failed, and there are acres and acres of jerry-built property in the suburbs, which probably in a few years will fall into a condition almost as bad as that of the wretched dwellings now being cleared away in our slums. The problem of the housing of the agricultural labourer in the country naturally does not attain the vast proportions of the same problem in the city. In this case a cottage, costing from £100 to £130, everything included, is needed. To effect this, purely local materials and labour should be utilised as far as possible."

